

REMARKS

This Amendment and Request for Reconsideration is submitted with a Request for Continued Examination and in response to an outstanding Office Action (Final Rejection) mailed on November 2, 2007, the shortened statutory period for response set to expire on February 2, 2008. Accordingly, this response is timely and no extension of time or fee is believed due. In the event that the Commissioner determines an extension of time, or associated fee is due, the undersigned hereby petitions for such extension of time and authorizes the Commissioner to charge any required fee to the Milbank deposit account 13-3250.

I. Status of the claims

Please amend claims 1, 28 and 29 as indicated above. Claims 1-29 are now pending in the application. Claims 1, 28 and 29 are independent claims.

The Applicant acknowledges the Examiner's citation of statutory authority as a basis for claim rejections.

II. Rejections under 35 U.S.C. § 112

The Examiner has rejected claims 1, 28 and 29 under 35 U.S.C. § 112 as failing to comply with the written description requirement.

In particular, the Examiner states in paragraph 3 that the specification does not disclose: the act of identifying a plurality of investment instruments that desire sharing; investment instruments of each holder are diverse with respect to the investment instruments of other holders; and determining which of the plurality of holders incurred a loss. The Applicant respectfully traverses the rejection.

Claim 1 recites: identifying a plurality of holders of investment

instruments that desire sharing of a risk of loss. The Applicant submits that the specification discloses this limitation. For example, in a non-limiting example beginning at page 19, line 13, through page 21, line 10, the specification describes how a client decides to take advantage of the invention by purchasing protection for a particular security. The client purchases that protection to share a risk of loss with other clients who also purchase protection:

Sample: How a Scheduling System Might Work

1. On March 27, a client decides he or she wants to purchase 100 shares of Intel. (INTC)
2. The client visits [www.\(company-name\).com](http://www.(company-name).com).
3. The client types in "INTC" and "100" (the number of shares desired) in the fields and clicks "submit."
4. In response, the client learns:

The earliest date available to purchase protection for INTC stock is:
April 16, 2001.

Estimated cost of six-month policy coverage: \$87.

If you would like to make this reservation, please proceed onto Step Five.

5. Enter credit card or account information.

Name and address.

6. The client is then instructed:

On April 16, 2001, purchase 100 shares of INTC through your broker.

On April 16, 2001, return to [www.\(company-name\).com](http://www.(company-name).com).

Enter the purchase price of your shares.

(The firm may seek client permission to verify purchase price with brokerage or request copies of the client's brokerage statement. The firm also may develop its own system whereby trade execution data for insured

transactions are immediately and automatically processed.)

The client is further informed:

You will be billed 3 percent of the total value of this transaction, not including the commission of your broker.

(If you do not enter a purchase price, the company will assume your purchase occurred at the highest ask price of the day.)

[The company also may have a “select your premium” program with a range, for example, of between 1 and 5 percent of transaction values depending on the amount of the loss compensation fund desired by the client (and hence probability for compensation).]

7. The client is charged \$87.

8. The client is then informed that he or she may sell his or her shares whenever he or she wishes. If the client sells for a gain (or small loss), the company may decide to reward this client with points applicable toward frequent flyer miles, hotel and other incentive programs. This provides the firm with promotional opportunities to persons “in the money.”

If a client sells and suffers a significant loss, he or she may be compensated automatically via their brokerage account; provided with credit toward additional insurance/protection policies; mailed a check; and/or a variety of other possibilities.

Upon the sale of insured securities, the client visits [www.\(company-name\).com](http://www.(company-name).com) and sign in. He or she will then see a screen showing the shares that are insured. The client is provided the opportunity to enter the “sale” price. If at the end of the policy’s coverage period the client’s sustained loss qualifies for compensation, the client’s credit card or account will be credited.

Therefore, the system and method of the claimed invention is able to identify a plurality of holders of investment instruments that desire sharing of a risk of loss by identifying the clients that have purchased protection. Accordingly, the specification discloses the act of identifying a plurality of holders of investment instruments that desire sharing of a risk of loss, and the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

Claim 1 further recites: wherein the investment instruments of holders are diverse with respect to the investment instruments of other holders, forming a diversified set of investment instruments reflecting diverse industry sectors or subsectors. The Applicant respectfully submits that the specification discloses this limitation in a number of non-limiting examples. The Applicant directs the Examiner to the following non-limiting examples in the specification:

- Page 9, line 24 - page 10, line 2

[“In this embodiment, the company uses a scheduling system for the purchasing of policies (so as to enable the creation of ‘security classes,’ and hence avoid overexposure to any one security)....”]
- Page 19, lines 8-12

[“As briefly noted earlier, the company practicing the invention can employ several strategies (...). One strategy entails comprehensive and complex diversification.”]
- Page 34, lines 8 - page 35, line 2

[“This document utilizes the North American Industrial Classification System (NAICS), a method of classifying businesses that replaced Standard Industrial Classification in 1997. According to the NAICS Association, the NAICS framework utilizes the following hierarchy: Industry Sector / Industry Subsector / Industry Group / Industry. One embodiment adopts the first half of this hierarchy. That is, classification will occur on the basis of Industry Sector and Industry Subsector. In other embodiments, the method is extended to Industry Group and Industry. Significantly, the NAICS divides economic activity into 20 sectors. The Manufacturing Sector, however, is too large for accurate equity diversification, comprising 21 subsectors. Therefore, it is preferable to divide the Manufacturing Sector into nine semi-related groups....”]
- Page 36, line 14 - page 38, line 16

[“In one embodiment, for purposes of diversification, an insured equity transaction undergoes three different rounds of loss compensation...(U)ltimately, security class formation is designed

to occur in a way that ensures that the principle of diversification remains intact.”]

- Page 39, lines 7-20

[“In one embodiment, due to the rules established to ensure diversification within subsector security classes, it may be necessary to have several different security classes for the same subsector simultaneously under formation....The mandate for diversification dictates its placement not within one Food and Beverage Stores subsector security class but rather several classes, across what may be a long period of time.”]

- Page 44, lines 3-7

[“For purposes of diversification, let us say here that shares of the nation’s largest grocer are not allowed to comprise more than half of the grocer subsector security class.”]

- Page 49, lines 1-7

[“It is believed that any 14 of these 28 sectors would provide a significant measure of diversification and broad macroeconomic exposure.”]

- Page 50 lines 6-9

[“It should be noted that a fourth round of loss compensation on the basis of world stocks, providing exposure to the global economy is possible.”]

- Page 71, lines 1-5

[“The percentage of revenue that is allotted to this realm suggests the degree of significance given to the diversification that this realm provides.”]

- Page 78, line 18 - page 79, line 21

[“One concern about this method pertained to the challenge of securing clients for those security classes that are unrelated to ‘high technology’ and biotechnology. A company practicing the invention probably would not want to underwrite policies only for small- and mid-capitalization companies that are perceived as higher-risk investments. This method therefore has a built-in flexibility in its ability to define security classes loosely without

compromising the principle of diversification....”]

- Page 80, lines 9-10
[“This device could make more equitable the above system and thereby help to ensure participation from a broad variety of investors.”]
- Page 80, lines 19-20
[“This value proposition may appeal significantly to clients in lower-risk investments while providing another option for investors who appreciate the diversification of sector- or subsector-specific mutual funds but also desire the possibility of higher rates of growth.”]
- Page 81, lines 12-20
[“...(T)his option provides to clients the ability to purchase diversification without the prospect of low growth rates (i.e., those of mutual funds).”]

Accordingly, the specification discloses wherein the investment instruments of holders are diverse with respect to the investment instruments of other holders, forming a diversified set of investment instruments reflecting diverse industry sectors or subsectors. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

Claim 1 further recites: determining which of the plurality of holders incurred a loss in the respective investment instruments at a predetermined time. The Applicant respectfully submits that this limitation is also disclosed in a number of places in the specification, and as an example, directs the Examiner to the table at page 5, line 9, which shows a list of 10 holders, with some holders that incurred a loss and other holders that had a gain (i.e. no loss):

Participant A	Loss \$1,000,000	(20 percent of investment)
Participant B	Loss \$1,500,000	(30 percent of investment)
Participant C	Gain: amount irrelevant	
Participant D	Loss \$500,000	(10 percent of investment)
Participant E	Gain: amount irrelevant	
Participant F	Loss \$1,000,000	(20 percent of investment)
Participant G	Loss \$2,000,000	(40 percent of investment)
Participant H	Loss \$250,000	(5 percent of investment)
Participant I	Loss \$100,000	(2 percent of investment)
Participant J	Loss \$3,650,000	(73 percent of investment)

Further, at page 10, lines 10-14, the specification provides an example of the predetermined time as being the end of a 5-month time period for coverage. The specification also provides a non-limiting example at page 43, lines 14, of a predetermined time as being the end of a 6-month time period for coverage. Accordingly, the specification discloses determining which of the plurality of holders incurred a loss in the respective investment instruments at a predetermined time. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

The Examiner states in paragraph 4 that the specification does not disclose how holders are identified. The Examiner notes that it may be implied that a plurality of holders must already be identified in order for the invention to work. The Applicant respectfully traverses the rejection. Holders that desire sharing of a risk of loss may subscribe to the system and method of the invention (see, for example, page 19, line 13 through page 21, line 10, included above), and the Applicant submits that upon a holder's subscription to the system and method of the invention, they are identified.

The Examiner states in paragraph 5 that it is not disclosed in the specification that the investment instruments of each holder are diverse with respect to the investment instruments of other holders. The Examiner recites a portion of the specification at lines 1-5 of page 86 and states that it can be implied from that statement

that the investor has a diversified investments [sic] but it cannot be implied that it is diverse with respect to other holders. The Examiner asks how is diversification measured with respect to other holders? The Applicant respectfully traverses the rejection. As discussed above with respect to paragraph 3, with a large number of references to the specification, the Applicant submits that the specification discloses that the investment instruments of holders are diverse with respect to the investment instruments of other holders, forming a diversified set of investment instruments reflecting diverse industry sectors or subsectors. Accordingly, this feature is disclosed in the specification, and the Applicant respectfully asks that the Examiner withdraw the rejection as to this basis.

The Examiner states in paragraph 6 that determining which of a plurality of holders incurred a loss in the respective investment instruments at a predetermined time is not defined in the specification. The Examiner notes that determining who incurred a loss can happen based on the threshold value. The Examiner assumes that the Applicant intends to use the threshold value as the method to determine a plurality of holders that incurred a loss. The Applicant respectfully traverses the rejection. The threshold value is not used to determine which of the plurality of holders incurred a loss but rather to determine which of the plurality of holders that incurred a loss receive reimbursement for their loss. The method used to determine which of the plurality of holders incurred a loss in the respective investment instruments at a predetermined time (a step occurring prior to calculation of the threshold value) is disclosed in the specification. For example, in a non-limiting example, the specification discloses identifying which holders incurred a loss at a predetermined time as integral to “The Winn-Dixie Example,” beginning on page 43 and continuing through page 78.

Specifically, at the end of a 6-month time period for coverage (from February 1, 2000, to August 1, 2000), the specification states on page 54, “It is first important to compile a summary of those clients who are desirous of loss compensation.” The example subsequently identifies the four holders with investment losses (ranging from 1.6 percent to 20 percent). The example continues, “The next step is to place in order, from greatest percentage loss to least, these four investments sustaining loss” – after which the step of calculating the loss threshold can proceed. Therefore, the Applicant respectfully submits that the specification discloses determining which of the plurality of holders incurred a loss in the respective investment instruments at a predetermined time.

For all these reasons, the Applicant submits that the claims are supported by the specification and the rejection under 35 U.S.C. 112 is improper and the Applicant respectfully asks the Examiner to withdraw the rejection.

III. Rejections under 35 U.S.C. § 102

The Examiner has rejected claims 1-5, 7, 8 and 11-29 under 35 U.S.C. § 102 as being anticipated by U.S. Published Patent Application No. US 2002/0147670 A1 to *Lange*. The Applicant’s response is hereby organized into three sections. The first section, “A,” respectfully requests reconsideration of the Applicant’s arguments from the Applicant’s previous response. In addition, this section clarifies and amplifies the fundamental differences between *Lange* and the Applicant’s invention. This section begins on page 18. The second section, “B,” respectfully responds to the Examiner’s response to the Applicant’s previous arguments and begins on page 28. The third section, “C,” respectfully responds to each of the Examiner’s arguments in rejecting claims 1-5, 7, 8 and 11-29 and begins on page 30, continuing through page 70.

A. Request for Reconsideration

The Applicant respectfully submits that *Lange* does not disclose that the investment instruments of holders are diverse with respect to the investment instruments of other holders. Further, *Lange* does not disclose that the investment instruments form a diversified set of investment instruments. There is also no disclosure in *Lange* about investment instruments reflecting diverse industry sectors or subsectors. At least for these reasons, the Applicant respectfully submits that *Lange* does not anticipate pending claim 1. For the same reasons, the Applicant respectfully submits that *Lange* does not anticipate pending claims 28 and 29. Pending claims 2-27 depend from claim 1 and therefore the Applicant submits that they are also allowable over *Lange*.

In response to the earlier Office Action, the Applicant explained the significant differences between *Lange* and the pending claims. The Applicant restates those arguments herein because they remain valid and are well-supported distinctions. The Applicant respectfully asks the Examiner to reconsider these arguments.

Applicant respectfully submits that the claimed inventions and the disclosure of *Lange* are fundamentally different. The Applicant submits that *Lange* teaches systems and methods to conduct demand-based trading for financial products. The goal of *Lange* is to reduce transaction costs for market participants who make investments in contingent claims relating to events of economic significance. Contingent claims in *Lange* are contingent in that their payout or return depends on the outcome of an observable economic event with more than one possible outcome. Possible outcomes fall within “states” which are mutually exclusive and collectively cover all possible outcomes for the economic event. An example of a contingent claim in *Lange* is a digital

call option where the investor receives a payment if the underlying asset, stock or index expires at or above a specific strike price – and receives no payment if the underlying asset, stock or index expires below the strike price. The contingent claims pertaining to an event in *Lange* have a trading or auction period in order to finalize the demand for each defined state; then another period to observe the economic event on which the contingent claim is based. The payouts or returns on all of the contingent claims during a trading or auction period pertaining to a particular economic event are (ignoring fees) “zero sum” – i.e. the total of all the investments in all of the defined states equals the total of all the payouts following the outcome of the economic event. In *Lange*, during a trading or auction period, the payouts or returns payable on the contingent claims adjust with changes in the distribution, or relative concentration, of amounts invested in (i.e. the demand for) each of the states – and are finalized at the conclusion of the trading or auction period. In other words, the process by which the payout or return payable for each contingent claim in *Lange* is finalized is “demand based” – i.e. it depends on the total amount invested in (i.e. the total demand for) all of the defined states and the relative amount invested in (i.e. the relative concentration of demand for) each of the defined states. Upon termination of the period to observe the outcome of the economic event on which the contingent claims are based – and the identification of the defined states that occurred and those that did not occur – payouts or returns are allocated to each investment. More specifically, in *Lange*, after the outcome of the observable economic event is known, the demand-based contingent claim mechanism allocates payouts or returns to defined states that occurred – based on the demand-based payouts or returns for those defined states as finalized at the conclusion of the trading or auction period. Stated

another way, in *Lange*, the payout or return to each investment in each of the defined states that did not occur is zero, and the sum of the demand-based payouts or returns to all of the investments in defined states that did occur equals (ignoring fees) the total of all of the investments in all of the defined states.

By contrast, the Applicant's claim 1 recites a method for sharing risk of loss among a plurality of investment instrument holders. The method comprises identifying a plurality of holders of investment instruments that desire sharing of a risk of loss, wherein the investment instruments of holders are diverse with respect to the investment instruments of other holders, forming a diversified set of investment instruments reflecting diverse industry sectors or subsectors. The method further comprises aggregating premiums to form a loss reduction fund, the premiums at least partially contributed by the plurality of holders. The method further comprises determining which of the plurality of holders incurred a loss in the respective investment instruments at a predetermined time, wherein some of the holders may incur a loss and other holders may not incur a loss. The method further comprises determining losses incurred by the holders that incurred a loss, wherein the amount of loss from one holder may be different from the loss of another holder. The method further comprises reimbursing at least a portion of the losses incurred by the holders that incurred a loss, wherein reimbursement to a particular investment instrument holder is at least partially determined by the loss of the particular holder, with consideration for losses of the plurality of holders, where some holders may be reimbursed and other holders may not be reimbursed.

Thus, one fundamental difference that distinguishes the Applicant's claim 1 from *Lange* is that the Applicant's claim 1 requires the principle and economic

advantage of diversification of investment in a set of investment instruments that are diversified from each other. By contrast, *Lange* is based on investment on economic events – without the benefit of diversification. This is one of the major and fundamental reasons the Applicant submits that *Lange* does not disclose or teach the features of the Applicant's claim 1.

With the goal of further clarifying this and other fundamental differences between *Lange*'s invention and that of the Applicant, the Applicant endeavors to provide below an amplified explanation of these fundamental differences. First, the Applicant identifies and clearly describes *Lange*'s invention. Second, the Applicant identifies and clearly describes his own invention. Finally, the Applicant explains the fundamental differences between *Lange*'s invention and his own.

Lange's Invention

As evidenced by Jeffrey Lange's patent application, his book Parimutuel Applications in Finance (co-authored by Lange with Ken Baron), and his article "A Parimutuel Market Microstructure for Contingent Claims" (co-authored by Lange with Nicholas Economides), Lange's invention is, as he calls it, a **parimutuel derivatives auction** (Page 34, Parimutuel Applications in Finance) **whereby participants place trades on the outcome of an event of economic significance, receiving demand-based adjustable returns** (Claim 1 and Paragraphs 3 and 35, Lange's patent application). Lange's parimutuel auction involves the same type of wagering activity (namely, parimutuel activity) that takes place at horse races. Indeed, Lange does not claim to have invented parimutuel principles or the concept of a parimutuel auction. In his article, Lange writes, "Parimutuel principles were invented in late 19th century France by Pierre

Oller as an alternative to the bookmaker syndicates that dominated French gaming at the time. The parimutuel mechanism supplanted bookmaker horse racing in the United States beginning in the 1920's and 1930's facilitated in large part by the invention of the automatic odds calculator (or 'totalizator') by Harry Strauss" (Page 3). What Lange believes he invented is a set of "extensions," "advances," and "innovations" on the parimutuel auction. The specific "extensions," "advances," and "innovations" Lange claims (via the company he co-founded, called Longitude) are identified in his book in the second column of Table 3.1 (Page 35):

Table 3.1 The parimutuel wagering framework and parimutuel innovations by Longitude



<i>In parimutuel wagering, customers can</i>	<i>With Longitude's parimutuel innovations, customers can</i>
Buy digital options	Buy and sell digital and vanilla options
Submit market orders	Submit market and limit orders
Request a specific amount of premium to invest	Request a specific number of contracts to buy and sell
Submit orders into separate parimutuel pools	Submit orders into one common pool of liquidity

In summary, Lange's invention is a parimutuel auction with certain innovations (those listed in the second column above).

What is a parimutuel auction? An introductory brochure authored by Scientific Games Corporation, a leading parimutuel technology company in the United States, describes parimutuel wagering as a form of betting where "[e]ach person has the ability to influence the odds. If people bet a lot of money on a particular horse, the odds will be low, while if a little money is bet on a particular horse, the odds will be high" (Page 2, "Racing is Fun!" brochure, Autotote Enterprises, Inc., a subsidiary of Scientific Games Corporation). This is precisely the concept which Lange is communicating by his

notions of “demand-based trading” and “demand-based, adjustable returns.” If demand for a particular outcome is high, the return will be, relative to the other potential outcomes, low. As demand changes during a parimutuel auction – changing the odds – then the potential return likewise adjusts to reflect the latest odds. As Lange states in Parimutuel Applications in Finance: “By the principle of relative demand, wagers on a specific horse to win decrease the odds on that horse to win (increase the price) and increase the odds (lower the prices) on other horses to win” (Page 26). Or as Lange states in his article: “A parimutuel game is conducted as a call auction in which odds are allowed to fluctuate during the betting period until the betting period is closed or the auction ‘called.’ The prices or odds of wagers are set based upon the relative amounts wagered on each risky outcome” (Page 1).

To clearly demonstrate the operation of a parimutuel auction, the Applicant placed a \$2 wager (the required minimum amount) at an Off-Track Betting ("OTB") facility in Hartford, Connecticut, on January 21, 2008. Specifically, the Applicant wagered \$2 on Congo King, the No. 7 horse, to win the fifth race at Santa Anita Park in Arcadia, California:

<h1>HARTFORD OTB</h1> <p>E-DE20-E9B0-4DCD</p> <p>21-Jan-08 5:22M</p>	
<p>Race 5</p>	<p>SANTA ANIT</p>
<p>\$2 WIN</p>	<p>\$2</p>
<p>7</p>	
<p>1 BET. TOTAL</p>	<p>\$2</p>
<p>3152 W006005 21Jan08 16:55:26</p>	
<p>E-DE20-E9B0-4DCD</p>	
<p>=====</p>	
	

Ten minutes prior to the race, when the Applicant placed the wager, Congo King had odds of 6:1 to win the race. This meant that the distribution of cash in the betting pool at that time was such that, if Congo King were to win the race, the \$2 wager would return \$14 (calculated by multiplying the odds by 2, then adding \$2, the amount of the original wager). By the time the race was about to begin, the odds of a win by Congo King had changed to 5:1 (returning \$12 if Congo King were to win). In other words, the relative demand for Congo King to win had increased, adjusting downward the potential return to the Applicant, from \$14 to \$12. At the conclusion of the race (after Congo King had indeed won), the Applicant learned that demand had increased further for Congo King in the seconds leading up to the race, as the final payout to the Applicant was \$11.60 (with final odds of 9:2). The amount of the payout to the Applicant was premised on the fundamental principle of the parimutuel auction – namely, in the words of Lange, the “principle of relative demand.” This principle is concretely evidenced by the following chart showing the distribution of cash on the array of potential winners of the horse race:

Horse	Jockey	Final Odds	Win Pool
1 Blowout	Baze, Michael	7	\$ 27,633
2 Only Him (Gb)	Bejarano, Rafa	15	\$ 13,634
3 Dr. Seacliff	Rosario, Joel	24	\$ 8,944
4 Sam Samir (Nz)	Talamo, Joseph	8	\$ 23,887
5 Dakota Padre	Flores, David	7	\$ 26,626
6 Follow My Moon	Court, Jon	65	\$ 3,395
7 Congo King	Gomez, Garrett	9/2	\$ 39,214
8 Boquense Bay (Arg)	Vergara, Octav	28	\$ 7,672
9 Scratched	Unavailable	-	\$ 0
10 Papanonie	Baze, Tyler	19	\$ 10,966
11 Scratched	Pedroza, Marti	-	\$ 0
12 In The Woods	Solis, Alex	7/5	\$ 95,346
13 Mon's The Man	Baze, Michael	15	\$ 13,909
14 Scratched	Garcia, Martin	-	\$ 0
		Total	\$271,233

Had the Applicant wagered \$20,000 (rather than \$2) on Congo King, this substantial change in relative demand in the pool would have caused the odds of a win by Congo King to decrease dramatically, thereby significantly reducing the potential payout on a win by Congo King.

Applicant's Invention

To clearly demonstrate the operation of the Applicant's invention, which can be summarized as a **loss reimbursement fund for a group of investors with investment instruments which are diversified by industry sector or subsector, with reimbursement according to a unique loss "threshold" calculation**, the Applicant, along with family members and friends, contributed approximately \$200,000 in cash to a Delaware limited liability company, called StockShield, LLC, in May 2006 (with the LLC issuing 20 membership interests in total, each priced at approximately \$10,000). There was no parimutuel auction (i.e. no demand-based trading) to determine the prices of the membership interests. Instead, a simple percentage of 10% of underlying stock value (\$100,000) was used as the pricing guideline, coupled with a "volatility adjustment" based on a standard measure of riskiness (i.e. the stock's publicly-available standard deviation). The Applicant, for example, purchased a membership interest in the LLC for \$9,700, designating the stock of Dow Jones & Co., Inc., a company with a Standard Industrial Classification (i.e. SIC Code) of "Newspapers: Publishing or Publishing & Printing." Family members and friends, meanwhile, purchased other membership interests designating different stocks in different industries (based on SIC Codes).

At one point in forming the pool, two participants wanted to designate the same biotechnology company (a problem anticipated by the Applicant in his original specification on Page 78, line 19). However, due to the requirement for diversification (noted on Page 79, line 2, and elsewhere throughout the specification), the Applicant's company, StockShield, Inc., did not permit the two participants to designate the same underlying investment instrument. Thus while the first participant was permitted to designate the biotechnology company (with a SIC Code of "Biological Products"), the second participant was required to select a different company in a different industry (with that person ultimately designating Toyota Motor Corporation, with a SIC Code of "Motor Vehicles & Passenger Car Bodies").

A statement showing the interim performance of StockShield, LLC (which the Applicant describes as the "Pilot Pool" for his invention) is attached as Exhibit A. As can be seen on Exhibit A, as of December 31, 2007, four participants had losses on their underlying investment instruments. The Amgen investor, for example, had a loss of 32.19%. Meanwhile, the pool was showing a "Pool Floor" (i.e. "threshold") of 0.0%, meaning that the pool had sufficient cash to reduce all losses to 0.0%. If aggregate losses (\$41,210 as of December 31, 2007) were to be greater than the total amount of cash in the loss reimbursement fund (\$209,475), then the "Pool Floor" (i.e. "threshold") would be greater than 0.0%, meaning that, under this scenario, losses would be reduced down to the "threshold" percentage. For example, if the "threshold" percentage were to be 10%, then losses would be reduced down to 10% (not 0%). As can be seen on Exhibit A, the returns to participants are not "demand-based adjustable returns," because the Applicant's invention does not in any way involve a parimutuel auction.

Fundamental Differences between Lange's Invention and the Applicant's Invention

First and foremost, Lange's claim 1 recites "a method for conducting demand-based trading." The Applicant's invention does not involve demand-based trading (i.e. it does not involve a parimutuel auction). The Applicant respectfully submits that Lange did not anticipate or disclose inventions which are not demand-based.

Second, Lange's claim 1 further recites "receiving an indication of a desired payout" and "determining an investment amount as a function of the selected outcome, the desired payout and a total amount invested in the plurality of states" – in other words, what Lange calls "adjustable returns." The Applicant's invention does not in any way involve parimutuel principles, including the concept of adjustable returns (which change as demand changes).

For these reasons, the Applicant respectfully submits that his invention differs fundamentally from that of Lange.

Furthermore, the Applicant's invention fundamentally differs from that of Lange in that the Applicant's invention is a risk-sharing (i.e. risk-reducing) pool which requires participants to own a set of diversified investment instruments – diversified by industry sector or subsector. In contrast, Lange's "extensions," "advances," and "innovations" on the parimutuel auction do not include a requirement that participants own a set of diversified investment instruments. Indeed, parimutuel auctions do not require participants to own a set of diversified investment instruments.

For all these reasons, the Applicant respectfully submits that Lange's invention and that of the Applicant differ on fundamental grounds. They do not infringe

or overlap each other. They are distinct inventions. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection.

B. Response to Examiner's Response to Arguments

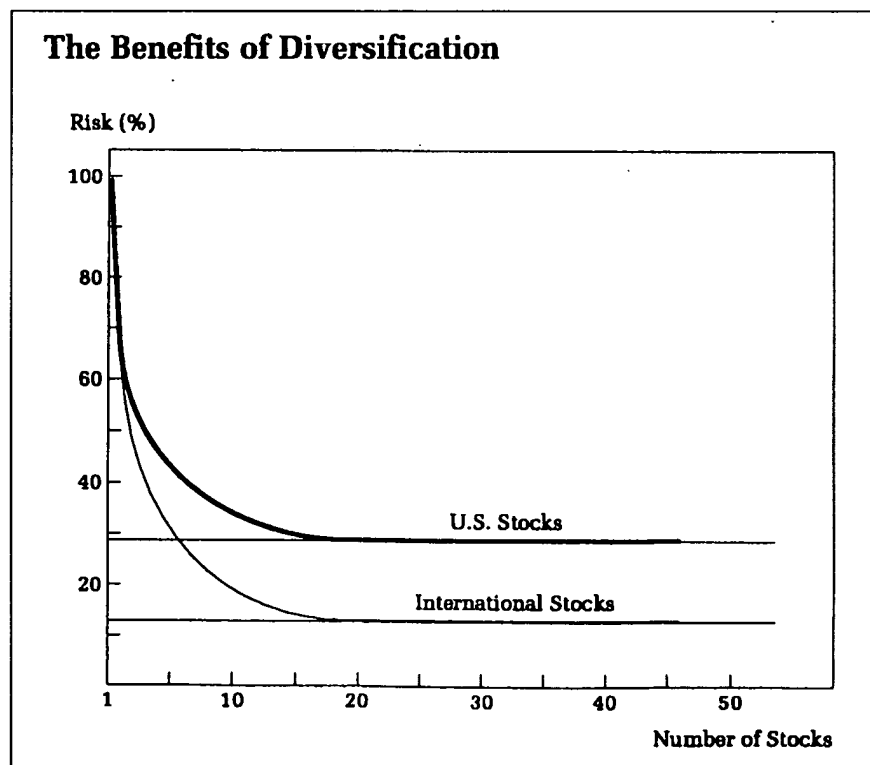
In section "A," the Applicant explained the fundamental differences between *Lange* and the pending claims, including the fact that *Lange* does not disclose that the investment instruments of holders are diverse with respect to the investment instruments of other holders. In the most recent Office Action, the Examiner states in paragraph 8 that *Lange* discloses the use of "multiple events" by users in paragraphs 33 and 38. For proper context with *Lange*'s mention of events, paragraphs 33 and 38 are included below:

[0033] The present invention is directed to systems and methods of trading, and financial products, having a goal of reducing transaction costs for market participants who hedge against or otherwise make investments in contingent claims relating to events of economic significance. The claims are contingent in that their payout or return depends on the outcome of an observable event with more than one possible outcome. An example of such a contingent claim is a digital option, such as a digital call option, where the investor receives a payout if the underlying asset, stock or index expires at or above a specified strike price and receives no payout if the underlying asset, stock or other index expires below the strike price. Digital options can also be referred to as, for example, "binary options" and "all or nothing options." The contingent claims relate to events of economic significance in that an investor or trader in a contingent claim typically is not economically indifferent to the outcome of the event, even if the investor or trader has not invested in or traded a contingent claim relating to the event.

[0038] As used in this specification, the term "contingent claim" shall have the meaning customarily ascribed to it in the securities, trading, insurance and economics communities. "Contingent claims" thus include, for example, stocks, bonds and other such securities, derivative securities, insurance contracts and reinsurance agreements, and any other financial products, instruments, contracts, assets, or liabilities whose value depends upon or reflects economic risk due to the occurrence of future, real-world events. These events may be financial-related events, such as changes in interest rates, or non-financial-related events such as changes in weather

conditions, demand for electricity, and fluctuations in real estate prices. Contingent claims also include all economic or financial interests, whether already traded or not yet traded, which have or reflect inherent risk or uncertainty due to the occurrence of future real-world events. Examples of contingent claims of economic or financial interest which are not yet traded on traditional markets are financial products having values that vary with the fluctuations in corporate earnings or changes in real estate values and rentals. The term “contingent claim” as used in this specification encompasses both hypothetical financial products of the Arrow-Debreu variety, as well as any risky asset, contract or product which can be expressed as a combination or portfolio of the hypothetical financial products.

The Applicant respectfully traverses the rejection and submits that “multiple events” should not be misconstrued as diversification. The Applicant respectfully submits that diversification is a method of reducing risk by acquiring a collection of exposures to a diverse array of industries. As indicated in the chart below [from Princeton professor Burton Malkiel’s A Random Walk Down Wall Street (New York: W. W. Norton & Company, 1999)], risk is reduced as the number of stocks increases from 1 to 20:



Further, as Malkiel notes in the text of his book, the stocks must be “well-diversified” (in different industries). Malkiel writes, “[C]learly, twenty oil stocks or twenty electric utilities would not produce an equivalent amount of risk reduction” (Page 212). Therefore, *Lange*’s reference to “events” does not disclose identifying a plurality of holders of investment instruments that desire sharing of a risk of loss, wherein the investment instruments of holders are diverse with respect to the investment instruments of other holders, forming a diversified set of investment instruments reflecting diverse industry sectors or subsectors.

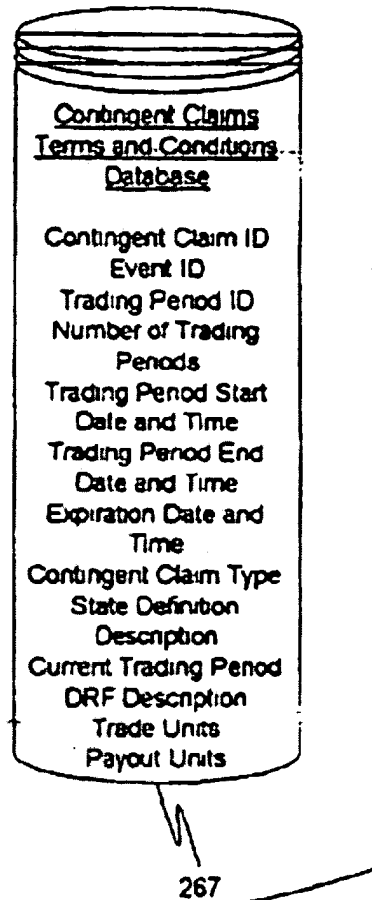
Where *Lange* mentions “diversification” (in paragraphs 234, 236, and 1392), it is in reference to the idea that traders using *Lange*’s invention receive exposure to a portfolio of *counterparties* – i.e. neither economic events nor investment instruments, but rather different “demand-based trading” *market participants* – with the resulting diversified ability of these parties to meet their (credit) obligations. Therefore, *Lange*’s invention diversifies credit risk as it relates to a demand-based auction, while the Applicant’s invention requires that the investment instruments of holders be diverse with respect to the investment instruments of other holders, forming a diversified set of investment instruments reflecting diverse industry sectors or subsectors.

For all these reasons, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

C. Response to Examiner’s Specific Arguments for Claims Rejections

The Examiner states in paragraph 10 that *Lange* discloses identifying a plurality of investment instruments in figure 4 (element 267). The Applicant respectfully traverses. The Applicant’s claim language is “plurality of holders of investment

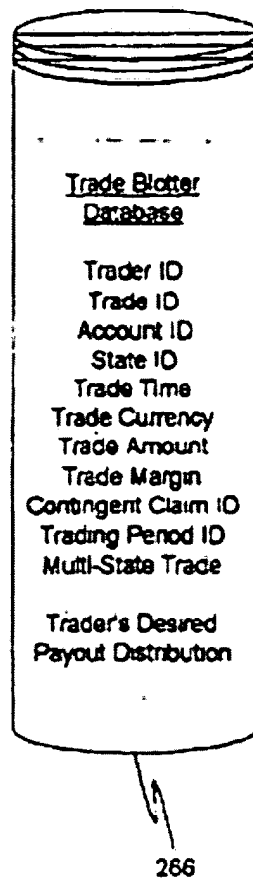
instruments.” The figure does not disclose the identifying of a plurality of holders of investment instruments. Element 267 of figure 4, which appears below, is a terms and conditions database:



As indicated above, this database includes the following information: Contingent Claim ID, Event ID, Trading Period ID, Number of Trading Periods, Trading Period Start Date and Time, Trading Period End Date and Time, Expiration Date and Time, Contingent Claim Type, State Definition, Description, Current Trading Period, DRF Description, Trade Units, and Payout Units. This database does not include information on holders.

The Examiner states in paragraph 10 that *Lange* discloses in figure 4 (element 266) that investment instruments of each holder are diverse with respect to that of other holders. The Applicant respectfully traverses. Element 266 of figure 4, which

appears below, is a trade blotter database:



As indicated above, this database includes the following information: Trader ID, Trade ID, Account ID, State ID, Trade Time, Trade Currency, Trade Amount, Trade Margin, Contingent Claim ID, Trading Period ID, Multi-State Trade, and Trader's Desired Payout Distribution. This figure does not disclose that the investment instruments of holders are diverse with respect to the investment instruments of other holders.

The Examiner states in paragraph 10 that *Lange* discloses sharing risk in paragraph 46. The Applicant respectfully traverses. Paragraph 46, which appears below, discusses the issuance of a security, such as a bond, by a corporation, investment bank, underwriter or other financial intermediary:

[0046] If desired, an issuer such as a corporation, investment bank,

underwriter or other financial intermediary can create a security having returns that are driven in a comparable manner to the DBAR contingent claims of the present invention. For example, a corporation may issue a bond with returns that are linked to insurance risk. The issuer can solicit trading and calculate the returns based on the amounts invested in contingent claims corresponding to each level or state of insurance risks.

The Applicant respectfully submits that the issuance of a security, such as a bond, does not disclose sharing risk. *Lange* does not disclose the purpose of the security issuance.

The Examiner states in paragraph 10 that *Lange*, in paragraphs 27 and 34, discloses aggregating premiums (at least partially by the holders) to form a loss reduction fund (hedge fund) and determining losses incurred by holders. The Applicant respectfully traverses. Paragraph 27, which appears below, discusses the problem of asymmetric information in traditional two-party transfers of risk, notably between a direct writer of insurance and its reinsurer:

[0027] Asymmetric Information: Derivatives dealers and market makers customarily seek to protect themselves from counterparties with similar information. Bid-offer spreads for derivatives therefore usually reflect a built-in insurance premium for the dealer for transactions with counterparties with superior information, which can lead to unprofitable transactions. Traditional insurance markets also incur costs due to asymmetric information. In property-casualty lines, the direct writer of the insurance almost always has superior information regarding the book of risks than does the assuming reinsurer. Much like the market maker in capital markets, the reinsurer typically prices its informational disadvantage into the reinsurance premiums.

Paragraph 34, which appears below, discusses the intended users of *Lange*'s invention:

[0034] Intended users of preferred and other embodiments of the present invention are typically institutional investors, such as financial institutions including banks, investment banks, primary insurers and reinsurers, and corporate treasurers, hedge funds and pension funds. Users can also include any individual or entity with a need for risk allocation services. As used in this specification, the terms "user," "trader" and "investor" are used interchangeably to mean any institution, individual or entity that desires to trade or invest in contingent claims or other financial products described in this specification.

No where in paragraphs 27 and 34 does *Lange* disclose the aggregating of premiums (at least partially by the holders) to form a loss reduction fund and determining losses incurred by holders. The use of the word “premium” in paragraph 27 does not constitute disclosure of an aggregating of premiums to form a loss reduction fund and determining losses incurred by holders. Similarly, in paragraph 34, the use of the term “hedge funds” does not constitute disclosure of an aggregating of premiums to form a loss reduction fund and determining losses incurred by holders. The Applicant respectfully submits that hedge funds are investment vehicles with the goal of generating return on investment in both up and down market conditions. A hedge fund is not a loss reduction fund, and a hedge fund does not determine losses incurred by holders.

The Examiner states in paragraph 10 that *Lange* discloses determining which of a plurality of holders incurred a loss in the respective investment instruments at a predetermine [sic] time wherein some holders incur a loss (may be different values) and others do not (some lose, others win) in paragraph 12. The Applicant respectfully traverses. Paragraph 12, which appears below, discusses the theory that derivatives markets are “zero sum” (with exactly offsetting positions in underlying securities):

[0012] In theory – that is, ignoring very real transaction costs (described below) – derivatives trading is, in the language of game theory, a “zero sum” game. One counterparty’s gain on a transaction should be exactly offset by the corresponding counterparty’s loss, assuming there are no transaction costs. In fact, it is the zero sum nature of the derivatives market which first allowed the well-known Black-Scholes pricing model to be formulated by noting that a derivative such as an option could be paired with an exactly offsetting position in the underlying security so as to eliminate market risk over short periods of time. It is this “no arbitrage” feature that allows market participants using sophisticated valuation models to mitigate market risk by continually adjusting their portfolios. Stock markets, by contrast, do not have this zero sum feature, as the total stock or value of the market fluctuates due to factors such as interest rates and expected corporate earnings, which are “external” to the market in the

sense that they cannot readily be hedged.

No where in paragraph 12 does *Lange* disclose determining which of a plurality of holders incurred a loss in the respective investment instruments at a predetermined time wherein some holders incur a loss (may be different values) and others do not (some lose, others win). In fact, in discussing game theory, *Lange* is not at all anticipating the invention of the Applicant. Indeed, *Lange* makes no mention of “different values” or any predetermined time at which point a determination is made as to which of a plurality of holders incurred a loss in the respective investment instruments, wherein some holders may incur a loss and other holders may not incur a loss. With respect to the Applicant’s invention, it is possible for no holders to incur any losses (i.e. all underlying investments may appreciate). Thus the fact that derivatives, including *Lange*’s invention, are “zero sum” is irrelevant to the Applicant’s invention.

The Examiner states in paragraph 10 that *Lange*, in the Abstract and paragraphs 1 through 5, discloses reimbursing at least a portion of the losses. The Applicant respectfully traverses. As indicated below, the Abstract makes no mention of reimbursing at least a portion of the losses. Further, paragraph 1 cites related patent applications (with no disclosure of reimbursing at least a portion of the losses); paragraph 2 is a copyright notice (with no disclosure of reimbursing at least a portion of the losses); paragraph 3 is the field of *Lange*’s invention (with no disclosure of reimbursing at least a portion of the losses); paragraph 4 discusses the growth of the Internet (with no disclosure of reimbursing at least a portion of the losses); and paragraph 5 discusses the growth of online trading (with no disclosure of reimbursing at least a portion of the losses). The Abstract and paragraphs 1 through 5 appear as follows:

Abstract

Methods and systems for conducting demand-based trading are described. In one embodiment, states are established, each state corresponding to at least one possible outcome of an event of economic significance. An investment amount may be determined as a function of a selected outcome, a desired payout, and a total amount invested in the states. In another embodiment, an investment amount may be determined as a function of parameters of a financial product. In another embodiment, a payout may be determined as a function of an investment amount, a selected outcome, a total amount invested in the states, and an identification of a state corresponding to an observed outcome of the event.

RELATED APPLICATIONS

[0001] This application is a continuation-in-part of U.S. application Ser. No. 09/809,025, filed Mar. 16, 2001, which is a continuation-in-part of U.S. application Ser. No. 09/774,816, filed Jan. 30, 2001 (as the U.S. national stage application under 35 U.S.C. §371 of Patent Cooperation Treaty application serial number PCT/US00/19447, filed Jul. 18, 2000), which is a continuation-in-part of U.S. application Ser. No. 09/448,822, filed Nov. 24, 1999. This application also claims priority to Patent Cooperation Treaty application serial number PCT/US00/19447, filed Jul. 18, 2000; and U.S. provisional application serial No. 60/144,890, filed Jul. 21, 1999. Each of the applications referred to in this paragraph is incorporated by reference in its entirety into this application.

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FIELD OF THE INVENTION

[0003] This invention relates to systems and methods for demand-based trading. More specifically, this invention relates to methods and systems for trading financial products, including digital options, having demand-based adjustable returns, and systems and methods for determining those returns.

BACKGROUND OF THE INVENTION

[0004] With the rapid increase in usage and popularity of the public Internet, the growth of electronic Internet-based trading of securities has been dramatic. In the first part of 1999, online trading via the Internet was estimated to make up approximately 15% of all stock trades. This volume has been growing at an annual rate of approximately 50%. High growth rates are projected to continue for the next few years, as increasing volumes of Internet users use online trading accounts.

[0005] Online trading firms such as E-Trade Group, Charles Schwab, and Ameritrade have all experienced significant growth in revenues due to increases in online trading activity. These companies currently offer Internet-based stock trading services, which provide greater convenience and lower commission rates for many retail investors, compared to traditional securities brokerage services. Many expect online trading to expand to financial products other than equities, such as bonds, foreign exchange, and financial instrument derivatives.

The Examiner states in paragraph 10 that *Lange* discloses, in paragraph 37, where some holders may be reimbursed and other holders may not (some get reimbursed while other [sic] pay). The Applicant respectfully traverses. Paragraph 37, which appears below, discusses the demand-based process by which returns and investment amounts for each contingent claim are finalized:

[0037] The process by which returns and investment amounts for each contingent claim are finalized in the present invention is demand-based, and does not in any substantial way depend on supply. By contrast, traditional markets set prices through the interaction of supply and demand by crossing bids to buy and offers to sell ("bid/offer"). The demand-based contingent claim mechanism of the present invention sets returns by financing returns to successful investments with losses from unsuccessful investments. Thus, in a preferred embodiment, the returns to successful investments (as well as the prices or investment amounts for investments in digital options) are determined by the total and relative amounts of all investments placed on each of the defined states for the specified observable event.

No where in paragraph 37 does *Lange* disclose where some holders may be reimbursed while other holders may not (some get reimbursed while others pay). First and foremost,

Lange makes no mention of any “holders” (i.e. investors with diverse investment instruments). Second, *Lange* makes no mention of any losses incurred by anyone (losses for which “reimbursement” can occur). Indeed, the Applicant respectfully submits that paragraph 37 highlights numerous features of *Lange*’s invention which suggest *Lange* did not, in fact, anticipate the Applicant’s invention. Specifically, paragraph 37 indicates that *Lange*’s invention operates with a demand-based contingent claim mechanism which sets returns to successful investments (as well as the prices or investment amounts for investments in digital options) by the total and relative amounts of all investments placed on each of the defined states for the specified observable event. In the Applicant’s invention, (1) there is no demand-based contingent claim mechanism, (2) there is no setting of returns (indeed, with respect to the Applicant’s invention, the size of returns, if any, are not known until the end of the predetermined term, based on the threshold value), (3) returns to successful investments are not determined by the total and relative amount of investments placed on each of the desired states, and (4) the prices or investment amounts for investments are not determined by the total and relative amount of investments placed on each of the desired states. Therefore, *Lange* does not disclose where some holders may be reimbursed while other holders may not (some get reimbursed while others pay), and the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

The Examiner states in paragraph 11 that, with respect to claims 2 and 4, *Lange* discloses that the reimbursements are from a loss reduction fund and the premiums are determined as a percentage of the investment price in paragraphs 5 through 7. The Applicant respectfully traverses. As indicated below, paragraph 5 discusses the growth of

online trading (with no disclosure that reimbursements are from a loss reduction fund and the premiums are determined as a percentage of the investment price):

[0005] Online trading firms such as E-Trade Group, Charles Schwab, and Ameritrade have all experienced significant growth in revenues due to increases in online trading activity. These companies currently offer Internet-based stock trading services, which provide greater convenience and lower commission rates for many retail investors, compared to traditional securities brokerage services. Many expect online trading to expand to financial products other than equities, such as bonds, foreign exchange, and financial instrument derivatives.

Further, as indicated below, paragraph 6 discusses the fact that financial products (e.g. stocks, bonds, foreign exchange contracts, etc.) all involve some measure of risk and that, to better analyze the nature of such risks, financial economists often treat the real-world financial products as if they were combinations of simpler, hypothetical financial products (with no disclosure that reimbursements are from a loss reduction fund and the premiums are determined as a percentage of the investment price):

[0006] Financial products such as stocks, bonds, foreign exchange contracts, exchange traded futures and options, as well as contractual assets or liabilities such as reinsurance contracts or interest-rate swaps, all involve some measure of risk. The risks inherent in such products are a function of many factors, including the uncertainty of events, such as the Federal Reserve's determination to increase the discount rate, a sudden increase in commodity prices, the change in value of an underlying index such as the Dow Jones Industrial Average, or an overall increase in investor risk aversion. In order to better analyze the nature of such risks, financial economists often treat the real-world financial products as if they were combinations of simpler, hypothetical financial products. These hypothetical financial products typically are designed to pay one unit of currency, say one dollar, to the trader or investor if a particular outcome among a set of possible outcomes occurs. Possible outcomes may be said to fall within "states," which are typically constructed from a distribution of possible outcomes (e.g., the magnitude of the change in the Federal Reserve discount rate) owing to some real-world event (e.g., a decision of the Federal Reserve regarding the discount rate). In such hypothetical financial products, a set of states is typically chosen so that the states are mutually exclusive and the set collectively covers or exhausts all possible outcomes for the event. This arrangement entails that, by design, exactly

one state always occurs based on the event outcome.

Further, as indicated below, *Lange* notes in paragraph 7 that hypothetical financial products are designed to isolate and break-down complex risks into distinct sources, are useful since the returns from more complicated securities can be modeled as a linear combination of the returns of the hypothetical financial products, and thus such hypothetical financial products are frequently used today to provide the fundamental building blocks for analyzing more complex financial products (with no disclosure that reimbursements are from a loss reduction fund and the premiums are determined as a percentage of the investment price):

[0007] These hypothetical financial products (also known as Arrow-Debreu securities, state securities, or pure securities) are designed to isolate and break-down complex risks into distinct sources, namely, the risk that a distinct state will occur. Such hypothetical financial products are useful since the returns from more complicated securities, including real-world financial products, can be modeled as a linear combination of the returns of the hypothetical financial products. See, eg., R. Merton, *Continuous-Time Finance* (1990), pp. 441 ff. Thus, such hypothetical financial products are frequently used today to provide the fundamental building blocks for analyzing more complex financial products.

Because *Lange* does not disclose that the reimbursements are from a loss reduction fund and the premiums are determined as a percentage of the investment price, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

The Examiner states in paragraph 12 that, with respect to claim 3, *Lange* discloses, in paragraph 8, that the reimbursements are from a fund other than the loss reduction fund. The Applicant respectfully traverses. As indicated below, paragraph 8 discusses the growth in derivatives trading, citing the Federal Reserve as indicating that foreign exchange and interest rate derivatives turnover is running at about 20%:

[0008] In recent years, the growth in derivatives trading has also been

enormous. According to the Federal Reserve, the annualized growth rate in foreign exchange and interest rate derivatives turnover alone is running at about 20%. Corporations, financial institutions, farmers, and even national governments and agencies are all active in the derivatives markets, typically to better manage asset and liability portfolios, hedge financial market risk, and minimize costs of capital funding. Money managers also frequently use derivatives to hedge and undertake economic exposure where there are inherent risks, such as risks of fluctuation in interest rates, foreign exchange rates, convertibility into other securities or outstanding purchase offers for cash or exchange offers for cash or securities.

Because *Lange* does not disclose that reimbursements are from a fund other than the loss reduction fund, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

The Examiner states in paragraph 13 that, with respect to claim 5, *Lange* discloses, in paragraph 2, that the investment instrument price is a current trading price at the time the premiums are aggregated. The Applicant respectfully traverses. As indicated below, paragraph 2 is a copyright notice for *Lange*'s patent application:

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Because *Lange* does not disclose that the investment instrument price is a current trading price at the time the premiums are aggregated, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

The Examiner states in paragraph 14 that, with respect to claim 7, *Lange* discloses, in paragraph 44, that the investment instruments can be within the same category (or group). The Applicant respectfully traverses. As indicated below, paragraph

44 discusses how a group of demand-based, adjustable-return contingent claims pertaining to the same event can have certain features, including real-time availability of information on the amounts invested across the distribution of all states (commonly known as a “limit order book”). *Lange* further enumerates four consequences of his preferred embodiments. No where in paragraph 44 does *Lange* disclose that the investment instruments of holders are all within the same or related investment categories:

[0044] Preferred features of a trading system for a group of DBAR contingent claims (i.e., group of claims pertaining to the same event) include the following: (1) an entire distribution of states is open for investment, not just a single price as in the traditional markets; (2) returns are adjustable and determined mathematically based on invested amounts in each of the states available for investment, (3) invested amounts are preferably non-decreasing (as explained below), providing a commitment of offered liquidity to the market over the distribution of states, and in one embodiment of the present invention, adjustable and determined mathematically based on requested returns per order, selection of outcomes for the option to expire in-the-money, and limit amounts (if any), and (4) information is available in real-time across the distribution of states, including, in particular, information on the amounts invested across the distribution of all states (commonly known as a “limit order book”). Other consequences of preferred embodiments of the present invention include (1) elimination of order-matching or crossing of the bid and offer sides of the market; (2) reduction of the need for a market maker to conduct dynamic hedging and risk management; (3) more opportunities for hedging and insuring events of economic significance (i.e., greater market “completeness”); and (4) the ability to offer investments in contingent claims whose profit and loss scenarios are comparable to these for digital options or other derivatives in traditional markets, but can be implemented using the DBAR systems and methods of the present invention, for example without the need for sellers of such options or derivatives as they function in conventional markets.

The use of the word “group” does not constitute a disclosure by *Lange* that the investment instruments of holders are all within the same or related investment categories. Indeed, *Lange* uses “group” to refer to demand-based, adjustable-return

contingent claims, not underlying investment instruments of holders. Indeed, traders investing in demand-based, adjustable-return contingent claims may not even own investment instruments. Therefore, *Lange* does not disclose that the investment instruments are all within the same or related investment categories, and the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

The Examiner states in paragraph 15 that, with respect to claim 8, *Lange* discloses, in paragraph 292, that the investment categories include risk. The Applicant respectfully traverses. As indicated below, paragraph 292 discusses embodiments of *Lange*'s Demand Reallocation Function (DRF), the means by which demand-based, adjustable-return contingent claims effect a reallocation of amounts invested across the distribution of states upon the occurrence of at least one state. *Lange* discusses a "canonical DRF" and other types of DRFs:

[0292] For a meaningful risk exchange to occur, a preferred embodiment of a DRF should effect a meaningful reallocation of amounts invested across the distribution of states upon the occurrence of at least one state. Groups of DBAR contingent claims of the present invention are discussed in the context of a canonical DRF, which is a preferred embodiment in which the amounts invested in states which did not occur are completely reallocated to the state which did occur (less any transaction fee). The present invention is not limited to a canonical DRF, and many other types of DRFs can be used and may be preferred to implement a group of DBAR contingent claims. For example, another DRF preferred embodiment allocates half the total amount invested to the outcome state and rebates the remainder of the total amount invested to the states which did not occur. In another preferred embodiment, a DRF would allocate some percentage to an occurring state, and some other percentage to one or more "nearby" or "adjacent" states with the bulk of the non-occurring states receiving zero payouts. Section 7 describes [sic] an OPF for DBAR digital options which includes a DRF and determines investment amounts per investment or order along with allocating returns. Other DRFs will be apparent to those of skill in the art from review of this specification and practice of the present invention.

The use of the word "risk" does not connote an investment category of equity risk (e.g.,

high-beta, low-beta, etc.). Therefore, nowhere in paragraph 292 does *Lange* disclose that the investment categories include equity risk. Because *Lange* does not disclose that investment categories include equity risk, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

The Examiner states in paragraph 16 that, with respect to claims 11 and 12, *Lange* discloses, in paragraphs 8 through 12, paragraph 547, and claim 127, that none of the plurality of holders are reimbursed for a loss that is less than the threshold loss and that the portion of the loss that is reimbursed begins at the threshold loss. The Applicant respectfully traverses. As indicated below, *Lange* discusses growth in derivatives trading in paragraph 8, citing the Federal Reserve as indicating that foreign exchange and interest rate derivatives turnover is running at about 20% (without disclosure that none of the plurality of holders are reimbursed for a loss that is less than the threshold loss and that the portion of the loss that is reimbursed begins at the threshold loss):

[0008] In recent years, the growth in derivatives trading has also been enormous. According to the Federal Reserve, the annualized growth rate in foreign exchange and interest rate derivatives turnover alone is running at about 20%. Corporations, financial institutions, farmers, and even national governments and agencies are all active in the derivatives markets, typically to better manage asset and liability portfolios, hedge financial market risk, and minimize costs of capital funding. Money managers also frequently use derivatives to hedge and undertake economic exposure where there are inherent risks, such as risks of fluctuation in interest rates, foreign exchange rates, convertibility into other securities or outstanding purchase offers for cash or exchange offers for cash or securities.

Further, as indicated below, in paragraph 9, *Lange* discusses how derivatives are traded on exchanges or over-the-counter (without disclosure that none of the plurality of holders are reimbursed for a loss that is less than the threshold loss and that the portion of the loss that is reimbursed begins at the threshold loss):

[0009] Derivatives are traded on exchanges, such as the option and futures contracts traded on the Chicago Board of Trade (“CBOT”), as well as off-exchange or over-the-counter (“OTC”) between two or more derivative counterparties. On the major exchanges that operate trading activity in derivatives, orders are typically either transmitted electronically or via open outcry in pits to member brokers who then execute the orders. These member brokers then usually balance or hedge their own portfolio of derivatives to suit their own risk and return criteria. Hedging is customarily accomplished by trading in the derivatives’ underlying securities or contracts (e.g., a futures contract in the case of an option on that future) or in similar derivatives (e.g., futures expiring in different calendar months). For OTC derivatives, brokers or dealers customarily seek to balance their active portfolios of derivatives in accordance with the trader’s risk management guidelines and profitability criteria.

Further, as indicated below, in paragraph 10, *Lange* discusses the means by which derivatives are traded. *Lange* discusses, in particular, the order-matching method, whereby “bids” to buy are paired off with “offers” to sell (without disclosure that none of the plurality of holders are reimbursed for a loss that is less than the threshold loss and that the portion of the loss that is reimbursed begins at the threshold loss):

[0010] Broadly speaking then, there are two widely utilized means by which derivatives are currently traded: (1) order-matching and (2) principal market making. Order matching is a model followed by exchanges such as the CBOT or the Chicago Mercantile Exchange and some newer online exchanges. In order matching, the exchange coordinates the activities of buyers and sellers so that “bids” to buy (i.e., demand) can be paired off with “offers” to sell (i.e., supply). Orders may be matched both electronically and through the primary market making activities of the exchange members. Typically, the exchange itself takes no market risk and covers its own cost of operation by selling memberships to brokers. Member brokers may take principal positions, which are often hedged across their portfolios.

Further, as indicated below, in paragraph 11, *Lange* discusses principal market making, where a bank or brokerage firm, for example, establishes a derivatives trading operation, capitalizes it, and makes a market by maintaining a portfolio of derivatives and underlying positions (without disclosure that none of the plurality of holders are

reimbursed for a loss that is less than the threshold loss and that the portion of the loss that is reimbursed begins at the threshold loss):

[0011] In principal market making, a bank or brokerage firm, for example, establishes a derivatives trading operation, capitalizes it, and makes a market by maintaining a portfolio of derivatives and underlying positions. The market maker usually hedges the portfolio on a dynamic basis by continually changing the composition of the portfolio as market conditions change. In general, the market maker strives to cover its cost of operation by collecting a bid-offer spread and through the scale economies obtained by simultaneously hedging a portfolio of positions. As the market maker takes significant market risk, its counterparties are exposed to the risk that it may go bankrupt. Additionally, while in theory the principal market making activity could be done over a wide area network, in practice derivatives trading is today usually accomplished via the telephone. Often, trades are processed laboriously, with many manual steps required from the front office transaction to the back office processing and clearing.

Further, as indicated below, in paragraph 12, *Lange* discusses the theory that derivatives markets are “zero sum,” with exactly offsetting transactions (without disclosure that none of the plurality of holders are reimbursed for a loss that is less than the threshold loss and that the portion of the loss that is reimbursed begins at the threshold loss):

[0012] In theory--that is, ignoring very real transaction costs (described below)--derivatives trading is, in the language of game theory, a “zero sum” game. One counterparty’s gain on a transaction should be exactly offset by the corresponding counterparty’s loss, assuming there are no transaction costs. In fact, it is the zero sum nature of the derivatives market which first allowed the well-known Black-Scholes pricing model to be formulated by noting that a derivative such as an option could be paired with an exactly offsetting position in the underlying security so as to eliminate market risk over short periods of time. It is this “no arbitrage” feature that allows market participants using sophisticated valuation models to mitigate market risk by continually adjusting their portfolios. Stock markets, by contrast, do not have this zero sum feature, as the total stock or value of the market fluctuates due to factors such as interest rates and expected corporate earnings, which are “external” to the market in the sense that they cannot readily be hedged.

Further, as indicated below, in paragraph 547, *Lange* notes that demand-based markets or

auctions can be used to create and trade digital options on calculated underlying events, similar to those found in exotic derivatives (without disclosure that none of the plurality of holders are reimbursed for a loss that is less than the threshold loss and that the portion of the loss that is reimbursed begins at the threshold loss):

[0547] In addition to the straightforward multivariate events outlined above, demand-based markets or auctions can be used to create and trade digital options (as described in Sections 6 and 7) on calculated underlying events (including the events described in this Section 3), similar to those found in exotic derivatives. Many exotic derivatives are based on path-dependent outcomes such as the average of an underlying event over time, price thresholds, a multiple of the underlying, or some sort of time constraint. An additional example follows:

The use of the word “threshold” does not constitute disclosure that none of the plurality of holders are reimbursed for a loss that is less than the threshold loss and that the portion of the loss that is reimbursed begins at the threshold loss. A “price threshold” (the term used by *Lange*) is usually a specific price at which an option becomes in-the-money or out-of-the-money. The Applicant’s “threshold loss,” meanwhile, is a calculated value (not a price) that is determined at the end of a predetermined time and which involves allocating funds from a loss reduction fund according to the threshold.

Further, as indicated below, claim 127 (including all claims to which it refers, i.e. claims 1, 123, and 126, also included below) does not disclose that none of the plurality of holders are reimbursed for a loss that is less than the threshold loss and that the portion of the loss that is reimbursed begins at the threshold loss. These claims follow:

127. The method according to claim 126, wherein the underlying event is an asset reaching a threshold value.

126. The method according to claim 123, wherein the underlying condition is an occurrence of an underlying event within a time period.

123. The method according to claim 1, wherein the event is a change of value of a selected financial product, the change of value is a function of an underlying condition.

1. A method for conducting demand-based trading, comprising: establishing a plurality of states, each state corresponding to at least one possible outcome of an event of economic significance; receiving an indication of a desired payout and an indication of a selected outcome, the selected outcome corresponding to at least one of the plurality of states; and determining an investment amount as a function of the selected outcome, the desired payout and a total amount invested in the plurality of states.

With respect to claim 127, *Lange*'s language is "wherein the underlying event is an asset reaching a threshold value." Again, *Lange*'s "threshold value" is a "price threshold" – which does not disclose or anticipate the Applicant's "loss threshold." The Applicant's invention does not involve a single "underlying event," and it does not involve "an asset reaching a threshold value." Further, with all of *Lange*'s claims dependent on claim 1, it is worthwhile to note that the Applicant's invention does not utilize a method for conducting demand-based trading, comprising: establishing a plurality of states, each state corresponding to at least one possible outcome of an event of economic significance; receiving an indication of a desired payout and an indication of a selected outcome, the selected outcome corresponding to at least one of the plurality of states; and determining an investment amount as a function of the selected outcome, the desired payout and a total amount invested in the plurality of states. Therefore, *Lange* does not disclose that none of the plurality of holders are reimbursed for a loss that is less than the threshold loss and that the portion of the loss that is reimbursed begins at the threshold loss, and the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

The Examiner states in paragraph 17 that, with respect to claim 13, *Lange* discloses that the threshold loss is a percentage value in paragraphs 41, 43, 297, 328, and 335. The Applicant respectfully traverses.

In paragraph 41, as indicated below, *Lange* discusses the function for computing and allocating returns to contingent claims, termed the Demand Reallocation Fund, and notes that an adjustable return based on variations in amounts invested is a key aspect of his invention (with no disclosure that the threshold loss is a percentage value):

[0041] In this specification, the function for computing and allocating returns to contingent claims is termed the Demand Reallocation Function (DRF). A DRF is demand-based and involves reallocating returns to investments in each state after the outcome of the observable event is known in order to compensate successful investments from losses on unsuccessful investments (after any transaction or exchange fee). Since an adjustable return based on variations in amounts invested is a key aspect of the invention, contingent claims implemented using a DRF will be referred to as demand-based adjustable return (DBAR) contingent claims.

Because *Lange* does not disclose that the threshold loss is a percentage value, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 43, as indicated below, *Lange* notes that “demand-based market” and “demand-based auction” may include, for example, a market or auction which is run or executed according to the principles set forth in the embodiments of *Lange*’s invention (with no disclosure that the threshold loss is a percentage value):

[0043] “Demand-based market,” “demand-based auction” may include, for example, a market or auction which is run or executed according to the principles set forth in the embodiments of the present invention. “Demand-based technology” may include, for example, technology used to run or execute orders in a demand-based market or auction in accordance with the principles set forth in the embodiments of the present invention. “Contingent claims” or “DBAR contingent claims” may include, for example, contingent claims that are processed in a demand-based market or auction. “Contingent claims” or “DBAR contingent claims” may include, for example, digital options or DBAR digital

options, discussed in this specification. With respect to digital options, demand-based markets may include, for example, DBAR DOEs (DBAR Digital Option Exchanges), or exchanges in which orders for digital options or DBAR digital options are placed and processed. “Contingent claims” or “DBAR contingent claims” may also include, for example, DBAR-enabled products or DBAR-enabled financial products, discussed in this specification.

Because *Lange* does not disclose that the threshold loss is a percentage value, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 297, as indicated below, *Lange* notes that a preferred embodiment of a DRF that can be used to implement a group of DBAR contingent claims is termed a “canonical” DRF (with no disclosure that the threshold loss is a percentage value):

[0297] A preferred embodiment of a DRF that can be used to implement a group of DBAR contingent claims is termed a “canonical” DRF. A canonical DRF is a type of DRF which has the following property: upon the occurrence of a given state i , investors who have invested in that state receive a payout per unit invested equal to (a) the total amount traded for all the states less the transaction fee, divided by (b) the total amount invested in the occurring state. A canonical DRF may employ a transaction fee which may be a fixed percentage of the total amount traded, T , although other transaction fees are possible. Traders who made investments in states which did not occur receive zero payout. Using the notation developed above: $2 i, j = (1 - f) * T T i$

The use of the word “percentage” does not constitute disclosure that the threshold loss is a percentage value. Indeed, *Lange*’s reference to a “fixed percentage” relates to the transaction fee of *Lange*’s invention, not the threshold value of the Applicant’s invention. Because *Lange* does not disclose that the threshold loss is a percentage value, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 328, as indicated below, *Lange* notes that in a preferred embodiment of a group of DBAR contingent claims with a canonical DRF, returns which

represent the percentage return per unit of investment are closely related to payouts (with no disclosure that the threshold loss is a percentage value):

[0328] In a preferred embodiment of a group of DBAR contingent claims with a canonical DRF, returns which represent the percentage return per unit of investment are closely related to payouts. Such returns are also closely related to the notion of a financial return familiar to investors. For example, if an investor has purchased a stock for \$100 and sells it for \$110, then this investor has realized a return of 10% (and a payout of \$110).

Lange's use of the word "percentage" does not constitute disclosure that the threshold loss is a percentage value. In *Lange*'s context, "percentage" refers to the notion of a financial return familiar to investors. In the Applicant's context, the threshold loss, when stated as a percentage, is the amount of loss which the investor must bear before receiving a distribution eliminating the loss beyond the threshold percentage. Therefore, *Lange*'s use of the word "percentage" in paragraph 328 does not disclose that the threshold loss is a percentage value. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 335, as indicated below, *Lange* notes that for the occurrence of any given state, no matter what state, the aggregate payout to all of the traders as a whole is one minus the transaction fee paid to the exchange (with no disclosure that the threshold loss is a percentage value):

[0335] Accordingly, in such a preferred embodiment, for the occurrence of any given state, no matter what state, the aggregate payout to all of the traders as a whole is one minus the transaction fee paid to the exchange (expressed in this preferred embodiment as a percentage of total investment across all the states), multiplied by the total amount invested across all the states for the group of DBAR contingent claims. This means that in a preferred embodiment of a group of the DBAR contingent claims, and assuming no credit or similar risks to the exchange, (1) the exchange has zero probability of loss in any given state; (2) for the occurrence of any given state, the exchange receives an exchange fee and is not exposed

to any risk; (3) payouts and returns are a function of demand flow, i.e., amounts invested; and (4) transaction fees or exchange fees can be a simple function of aggregate amount invested.

Again, in this context, *Lange*'s use of the word "percentage" refers to the transaction fee of *Lange*'s invention, not the threshold value of the Applicant's invention. Therefore, because *Lange* does not disclose that the threshold loss is a percentage value, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

The Examiner states in paragraph 18 that, with respect to claim 14, *Lange* discloses that the threshold loss is a dollar value in paragraph 547. The Applicant respectfully traverses. As indicated below, in paragraph 547, *Lange* notes that demand-based markets or auctions can be used to create and trade digital options on calculated underlying events, similar to those found in exotic derivatives (without disclosure that the threshold loss is a dollar value):

[0547] In addition to the straightforward multivariate events outlined above, demand-based markets or auctions can be used to create and trade digital options (as described in Sections 6 and 7) on calculated underlying events (including the events described in this Section 3), similar to those found in exotic derivatives. Many exotic derivatives are based on path-dependent outcomes such as the average of an underlying event over time, price thresholds, a multiple of the underlying, or some sort of time constraint. An additional example follows:

No where in paragraph 547 does *Lange* use the word "dollar" or refer to the currency of the United States or any other country. Therefore, because *Lange* does not disclose that the threshold loss is a dollar value in paragraph 547, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

The Examiner states in paragraph 19 that, with respect to claims 15 and 16, *Lange* discloses that all of the plurality of holders are reimbursed for a loss that is less than the threshold loss and none are reimbursed if the loss is greater than the threshold

loss in paragraphs 33, 965, and 983. The Applicant respectfully traverses.

In paragraph 33, as indicated below, *Lange* explains that his invention is directed to systems and methods of trading, and financial products, having a goal of reducing transaction costs for market participants who hedge or otherwise make investments in contingent claims relating to events of economic significance (with no disclosure that all of the plurality of holders are reimbursed for a loss that is less than the threshold loss and none are reimbursed if the loss is greater than the threshold loss):

[0033] The present invention is directed to systems and methods of trading, and financial products, having a goal of reducing transaction costs for market participants who hedge against or otherwise make investments in contingent claims relating to events of economic significance. The claims are contingent in that their payout or return depends on the outcome of an observable event with more than one possible outcome. An example of such a contingent claim is a digital option, such as a digital call option, where the investor receives a payout if the underlying asset, stock or index expires at or above a specified strike price and receives no payout if the underlying asset, stock or other index expires below the strike price. Digital options can also be referred to as, for example, “binary options” and “all or nothing options.” The contingent claims relate to events of economic significance in that an investor or trader in a contingent claim typically is not economically indifferent to the outcome of the event, even if the investor or trader has not invested in or traded a contingent claim relating to the event.

Specifically, in paragraph 33, *Lange* cites an example of a digital call option, where the investor receives a payout if the underlying asset, stock or index expires at or above a specific strike price and receives no payout if the underlying asset, stock or other index expires below the strike price. No where in this example, or anywhere else in paragraph 33, does *Lange* disclose that all of the plurality of holders are reimbursed for a loss that is less than the threshold loss and none are reimbursed if the loss is greater than the threshold loss. Indeed, *Lange*’s discussion relates to payouts to a particular trader (not all of a plurality of holders of investment instruments), and he does not mention a threshold

loss or similar calculation. With respect to *Lange*'s use of the term "strike price," the Applicant respectfully submits that, according to the Options Industry Council, a "strike price" is defined as "the price at which the owner of an option can purchase (call) or sell (put) the underlying stock." The Applicant respectfully submits that there is no such concept in the Applicant's invention. Therefore, no where in paragraph 33 does *Lange* disclose that all of the plurality of holders are reimbursed for a loss that is less than the threshold loss and none are reimbursed if the loss is greater than the threshold loss, and the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 965, as indicated below, *Lange* discusses how his demand-based auction can accept "limit" orders, noting that the objective function of the optimization problem in 7.7.1 is the sum of the payout amounts for all of the limit orders that may be executed in equilibrium (with no disclosure that all of the plurality of holders are reimbursed for a loss that is less than the threshold loss and none are reimbursed if the loss is greater than the threshold loss):

[0965] The objective function of the optimization problem in 7.7.1 is the sum of the payout amounts for all of the limit orders that may be executed in equilibrium. The first constraint, 7.7.1(1), requires that the limit price be greater than or equal to the equilibrium price for any payout to be executed in equilibrium (recalling that all orders, including "sell" orders, may be processed as buy orders). The second constraint, 7.7.1(2), requires that the execution payout for the order be positive and less than or equal to the requested payout of the order. The third constraint, 7.7.1(3) is the DBAR digital option equilibrium equation as described in Equation 7.4.7.

No where in paragraph 965 does *Lange* disclose that all of the plurality of holders are reimbursed for a loss that is less than the threshold loss and none are reimbursed if the loss is greater than the threshold loss. Indeed, the Applicant respectfully submits that the constraints involved with limit orders (as indicated in paragraph 965) are irrelevant to the

Applicant's invention. Because *Lange* does not disclose in paragraph 965 that all of the plurality of holders are reimbursed for a loss that is less than the threshold loss and none are reimbursed if the loss is greater than the threshold loss, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 983, as indicated below, *Lange* continues to explain limit order book optimization (with no disclosure that all of the plurality of holders are reimbursed for a loss that is less than the threshold loss and none are reimbursed if the loss is greater than the threshold loss):

[0983] (8) Increment the orders ($x_{sub,j}$) that have adjusted limit prices ($w_{sub,j,sup,a}$) greater than or equal to the current equilibrium price for that order $\pi_{sub,j}(x)$ (obtained in step (6)) by the current step size $\alpha_{sub,j}(K)$, but not to exceed the requested notional payout of the order, $r_{sub,j}$. Decrement the orders ($x_{sub,j}$) that have a positive executed order amount ($x_{sub,j} > 0$) and have limit prices less than the current equilibrium market price $\pi_{sub,j}(x)$ by the current step size $\alpha_{sub,j}(\kappa)$, but not to an amount less than zero.

Because *Lange* does not disclose in paragraph 983 that all of the plurality of holders are reimbursed for a loss that is less than the threshold loss and none are reimbursed if the loss is greater than the threshold loss, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 20, with respect to claim 17 ("a method according to claim 15, wherein the threshold loss is a percentage value"), the Examiner refers the Applicant to the rejection of claims 15 and 13. The Applicant respectfully traverses. As noted above, with respect to claim 15, no where in paragraphs 33, 965, and 983 does *Lange* disclose that all of the plurality of holders are reimbursed for a loss that is less than a threshold loss. In addition, as noted above, with respect to claim 13, no where in paragraphs 41, 43, 297, 328, and 335 does *Lange* disclose that the threshold loss is a

percentage value. For these reasons, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 21, with respect to claim 18 (“a method according to claim 15, wherein the threshold loss is a dollar value”), the Examiner refers the Applicant to the rejection of claims 15 and 14. The Applicant respectfully traverses. As noted above, with respect to claim 15, no where in paragraphs 33, 965, and 983 does *Lange* disclose that all of the plurality of holders are reimbursed for a loss that is less than a threshold loss. In addition, as noted above, with respect to claim 14, no where in paragraph 547 does *Lange* disclose that the threshold loss is a dollar value. For these reasons, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 22, the Examiner states that, with respect to claim 19, *Lange* discloses in the Abstract that the plurality of holders experiencing the largest percentage of loss receive the largest percentage of loss reimbursement. The Applicant respectfully traverses. As indicated below, the Abstract makes no mention of the plurality of holders experiencing the largest percentage of loss receiving the largest percentage of loss reimbursement:

Abstract

Methods and systems for conducting demand-based trading are described. In one embodiment, states are established, each state corresponding to at least one possible outcome of an event of economic significance. An investment amount may be determined as a function of a selected outcome, a desired payout, and a total amount invested in the states. In another embodiment, an investment amount may be determined as a function of parameters of a financial product. In another embodiment, a payout may be determined as a function of an investment amount, a selected outcome, a total amount invested in the states, and an identification of a state corresponding to an observed outcome of the event.

Because *Lange* does not disclose in the Abstract that the plurality of holders experiencing the largest percentage of loss receive the largest percentage of loss reimbursement, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 22, with respect to claim 19, the Examiner also refers the Applicant to the rejection of claim 13. The Applicant respectfully traverses. As noted above, with respect to claim 13, no where in paragraphs 41, 43, 297, 328, and 335 does *Lange* disclose that the threshold loss is a percentage value. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 23, with respect to claim 20, the Examiner again refers the Applicant to the rejection of claim 13. The Applicant respectfully traverses. As noted above, with respect to claim 13, no where in paragraphs 41, 43, 297, 328, and 335 does *Lange* disclose that the threshold loss is a percentage value. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

The Examiner states in paragraph 24 that, with respect to claim 21, *Lange* discloses creating a pool of a plurality of loss reduction funds in paragraphs 34 and 1044-1048. The Applicant respectfully traverses.

In paragraph 34, as indicated below, *Lange* discusses the intended users of his invention (with no disclosure of creating a pool of a plurality of loss reduction funds):

[0034] Intended users of preferred and other embodiments of the present invention are typically institutional investors, such as financial institutions including banks, investment banks, primary insurers and reinsurers, and corporate treasurers, hedge funds and pension funds. Users can also include any individual or entity with a need for risk allocation services. As used in this specification, the terms “user,” “trader” and “investor” are used interchangeably to mean any institution, individual or entity that desires to trade or invest in contingent claims or other financial products described in this specification.

The use of the term “hedge funds” does not constitute disclosure of creating a pool of a plurality of loss reduction funds. The Applicant, as above, respectfully submits that hedge funds are investment vehicles with the goal of generating consistent returns on investment in both up and down market conditions. A hedge fund is not a loss reduction fund. Therefore, *Lange* does not disclose creating a pool of a plurality of loss reduction funds in paragraph 34, and the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 1044, *Lange* notes that participation in leveraged investments in general and derivatives products such as options, futures, and swaps in particular may be affected by regulatory, accounting, internal institutional policies, and other related constraints. *Lange* does not disclose creating a pool of a plurality of loss reduction funds:

[1044] Regulatory, accounting, internal institutional policies, and other related constraints may affect the ability, willingness, and frequency of participation in leveraged investments in general and derivatives products such as options, futures, and swaps in particular. Hedge funds and proprietary traders, for instance, may actively trade digital options, but may be unlikely to trade in certain structured note products that have identical risks while requiring significant capital. On the other hand, “real money” accounts such as portfolio managers, insurers, and pension funds may actively trade instruments that bear significant event risk, but these real money customers may be unlikely to trade DBAR digital options bearing identical event risks.

The use of the word “insurers” does not constitute disclosure of creating a pool of a plurality of loss reduction funds. Because *Lange* does not disclose creating a pool of a plurality of loss reduction funds in paragraph 1044, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 1045, *Lange* discusses how a fixed income manager may invest in fixed income securities for which the return of principal and payment of interest are

contingent upon the non-occurrence of a specific “trigger” event such as a hurricane:

[1045] For example, according to the prospectus for their total return fund, one particular fixed income manager may invest in fixed income securities for which the return of principal and payment of interest are contingent upon the non-occurrence of a specific ‘trigger’ event, such as a hurricane, earthquake, tornado, or other phenomenon (referred to, for example, as ‘event-linked bonds’). These instruments typically pay a spread to LIBOR should losses not exceed a stipulated level.

Because *Lange* does not disclose creating a pool of a plurality of loss reduction funds in paragraph 1045, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 1046, *Lange* discusses how fixed-income managers may participate widely in the corporate bond market, but may participate to a lesser extent in the default swap market:

[1046] On the other hand, a fixed-income manager may not trade in an Industry Loss Warranty market or auction with insurers (discussed above in Section 3), even though the risks transacted in this market or auction, effectively a market or auction for digital options on property risks posed by hurricanes, may be identical to the risks borne in the underwritten Catastrophe-linked (CAT) securities. Similarly, the fixed-income manager and other fixed income managers may participate widely in the corporate bond market, but may participate to a lesser extent in the default swap market (convertible into a demand-based market or auction), even though a corporate bond bears similar risks as a default swap bundled with a traditional LIBOR-based note or swap.

Because *Lange* does not disclose creating a pool of a plurality of loss reduction funds in paragraph 1046, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 1047, *Lange* states that the structure and form in which products are offered can impact the degree of customer participation in demand-based markets or auctions, especially for real-money customers:

[1047] The unifying theme to these clientele effects is that the structure and form in which products are offered can impact the degree of customer participation in demand-based markets or auctions, especially for real money customers which avoid leverage and trade few, if any, options but actively seek fixed-income-like instruments offering significant spreads to LIBOR for bearing some event-related risk on an active and informed basis.

Because *Lange* does not disclose creating a pool of a plurality of loss reduction funds in paragraph 1047, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 1048, *Lange* notes that demand-based markets or auctions can simultaneously offer both digital options and DBAR-enabled products, such as risk-linked floating rate notes and swaps, to different customers within the same risk-pricing, allocation, and execution mechanism:

[1048] This embodiment addresses these “clientele effects” in the risk-bearing markets by allowing demand-based markets or auctions to simultaneously offer both digital options and DBAR-enabled products, such as, for example, risk-linked FRNs (or floating rate notes) and swaps, to different customers within the same risk-pricing, allocation, and execution mechanism. Thus, hedge funds, arbitrageurs, and derivatives dealers can transact in the demand-based market or auction in terms of digital options, while real money customers can transact in the demand-based market or auction in terms of different sets of instruments: swaps and notes paying spreads to LIBOR. For both types of customers, the payout is contingent upon an observed outcome of an economic event, for example, the level of the economic statistic at the release date (or e.g., at the end of the observation period).

Because *Lange* does not disclose creating a pool of a plurality of loss reduction funds in paragraph 1048, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

The Examiner states in paragraph 25 that, with respect to claim 22, *Lange* discloses reimbursement to the holder from the pool in paragraphs 36 and 506. The

Applicant respectfully traverses.

In paragraph 36, *Lange* states that in each market or auction, the returns to the contingent claims adjust during the trading period of the market or auction with changes in the distribution of amounts invested in each of the states:

[0036] In each market or auction, the returns to the contingent claims adjust during the trading period of the market or auction with changes in the distribution of amounts invested in each of the states. The investment amounts for the contingent claims can either be provided up front or determined during the trading period with changes in the distribution of desired returns and selected outcomes for each claim. The returns payable for each of the states are finalized after the conclusion of each relevant trading period. In a preferred embodiment, the total amount invested, less a transaction fee to an exchange, or a market or auction sponsor, is equal to the total amount of the payouts. In other words, in theory, the returns on all of the contingent claims established during a particular trading period and pertaining to a particular event are essentially zero sum, as are the traditional derivatives markets. In one embodiment, the investment amounts or prices for each contingent claim are finalized after the conclusion of each relevant trading period, along with the returns payable for each of the states. Since the total amount invested, less a transaction fee to an exchange, or a market or auction sponsor, is equal to the total amount of payouts, an optimization solution using an iteration algorithm described below can be used to determine the equilibrium investment amounts or prices for each contingent claim along with establishing the returns on all of the contingent claims, given the desired or requested return for each claim, the selection of outcomes for each claim and the limit (if any) on the investment amount for each claim.

No where in paragraph 36 does *Lange* disclose reimbursement to the holder from the pool. First and foremost, *Lange* does not discuss any investment losses for which reimbursement is possible. If there are no investment instruments which have created losses, *Lange* cannot disclose reimbursement to the holder from the pool. Second, *Lange* does not disclose that the users of his invention are holders of investment instruments. They very well may use his invention without holding any investment instruments. Because *Lange* does not disclose reimbursement to the holder from the pool in paragraph

36, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 506, *Lange* states that demand-based markets or auctions can be structured to trade DBAR contingent claims based on power demand for a particular power pool such as the Pennsylvania-New Jersey-Maryland Interconnect:

[0506] Transmission Load: Demand-based markets or auctions can be structured to trade DBAR contingent claims, including, for example, digital options, based on the actual load (power demand) experienced for a particular power pool, allowing participants to trade volume, in addition to price. For example, DBAR contingent claims can be based on an underlying event defined as the weekly total load demand experienced by Pennsylvania-New Jersey-Maryland Interconnect (PJM Western Hub).

No where in paragraph 506 does *Lange* disclose reimbursement to the holder from the pool. The use of the word “pool” does not constitute a disclosure of reimbursement to the holder from the pool. A “power pool” (defined by the California Energy Commission as “two or more interconnected utilities that plan and operate to supply electricity in the most reliable, economical way to meet their combined load”) is not a loss reduction fund. In addition, *Lange* does not discuss any investment losses for which reimbursement is possible. If there are no investment instruments which have created losses, *Lange* cannot disclose reimbursement to the holder from the pool. Finally, as noted above, *Lange* does not disclose that the users of his invention are holders of investment instruments. They very well may use his invention without holding any investment instruments. Because *Lange* does not disclose reimbursement to the holder from the pool in paragraph 506, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 26, with respect to claim 23, the Examiner refers the Applicant to the rejection of claim 3. The Applicant respectfully traverses. As noted

above, with respect to claim 3, no where in paragraph 8 does *Lange* disclose that the reimbursements are from a fund other than the loss reduction fund. Indeed, paragraph 8 discusses the growth in derivatives trading, citing the Federal Reserve as indicating that foreign exchange and interest rate derivatives turnover is running at about 20%. Because *Lange* does not disclose that the reimbursements are from a fund other than the loss reduction fund in paragraph 8, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

The Examiner states in paragraph 27 that, with respect to claim 24, *Lange* discloses various time frames for different loss reduction funds in paragraph 110. The Applicant respectfully traverses. As indicated below, in paragraph 110, *Lange* discusses increased availability to traders of accurate and up-to-date information on the trading of contingent claims:

[0110] 4. increased availability to traders of accurate and up-to-date information on the trading of contingent claims, including information regarding the aggregate amounts invested across all states of events of economic significance, and including over varying time periods;

The use of the words “varying time periods” in *Lange* does not constitute a disclosure by *Lange* that the predetermined time of one loss reduction fund is not necessarily the same as the predetermined time of another loss reduction fund. Specifically, when mentioning “varying time periods,” *Lange* does not indicate whether these relate to any predetermined time. Indeed, it very well may refer to the trading period of only one demand-based auction. Even if it were to refer to more than one demand-based auction, *Lange* does not make any reference to the varying time periods having any relation to loss reduction funds. There is no mention of a loss reduction fund in paragraph 110. Therefore, *Lange* does not disclose that the predetermined time of one loss reduction fund

is not necessarily the same as the predetermined time of another loss reduction fund in paragraph 110, and the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 28, with respect to claim 25, the Examiner refers the Applicant to the rejection of claim 22. The Applicant respectfully traverses. As noted above, with respect to claim 22, no where in paragraphs 36 and 506 does *Lange* disclose reimbursement to the holder from the pool. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

The Examiner states in paragraph 29 that, with respect to claim 26, *Lange* discloses allocating risk through risk capital allocation (the use of insurance to cover the loss not covered by the fund) in paragraphs 26 and 29. The Applicant respectfully traverses.

As indicated below, in paragraph 26, *Lange* notes that derivatives contracts can be quite difficult to value, especially those involving interest rates or features which allow a counterparty to make decisions throughout the life of the derivative. Due to model risk in valuing these contracts, *Lange* notes that derivatives dealers will typically add a premium to derivatives prices to insure against the possibility that the valuation models may not adequately reflect market factors or other conditions throughout the life of the contract:

[0026] (7) Model Risk: Derivatives contracts can be quite difficult to value, especially those involving interest rates or features which allow a counterparty to make decisions throughout the life of the derivative (e.g., American options allow a counterparty to realize the value of the derivative at any time during its life). Derivatives dealers will typically add a premium to derivatives prices to insure against the possibility that the valuation models may not adequately reflect market factors or other conditions throughout the life of the contract. In addition, risk

management guidelines may require firms to maintain additional capital supporting a derivatives dealing operation where model risk is determined to be a significant factor. Model risk has also been a large factor in well-known cases where complicated securities risk management systems have provided incorrect or incomplete information, such as the Joe Jett/Kidder Peabody losses of 1994.

No where in paragraph 26 does *Lange* disclose allocating risk through risk capital allocation. When *Lange* states that derivatives dealers will typically add a premium to derivatives prices to insure against model risk, he is stating only that the prices offered by derivatives dealers include a built-in “premium” to compensate the counterparty for the model risk it is assuming. In other words, *Lange* is not disclosing “the use of insurance to cover the loss not covered by the fund.” Instead, *Lange* is stating that the final prices offered by derivatives dealers include consideration for model risk. (It should be added that the paraphrasing of risk capital allocation, “the use of insurance to cover the loss not covered by the fund,” is not accurate. Risk capital allocation, as disclosed in the Applicant’s specification, is not insurance but rather a system and method for the brokering of deals between clients that aims to reduce or eliminate a given client’s residual loss – that portion of loss not compensated by the previous processes of loss compensation. See, for example, paragraph 452 of the Applicant’s specification.) Because *Lange* does not disclose allocating risk through risk capital allocation in paragraph 26, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

Further, as indicated below, in paragraph 29, *Lange* notes that transaction costs are also considerable in traditional insurance and reinsurance markets:

[0029] Currently, transaction costs are also considerable in traditional insurance and reinsurance markets. In recent years, considerable effort has been expended in attempting to securitize insurance risk such as property-

casualty catastrophe risk. Traditional insurance and reinsurance markets in many respects resemble principal market-maker securities markets and suffer from many of the same shortcomings and incur similar costs of operation. Typically, risk is physically transferred contractually, credit status of counterparties is monitored, and sophisticated risk management systems are deployed and maintained. Capitalization levels to support insurance portfolios of risky assets and liabilities may be dramatically out of equilibrium at any given time due to price stickiness, informational asymmetries and costs, and regulatory constraints. In short, the insurance and reinsurance markets tend to operate according to the same market mechanisms that have prevailed for decades, despite large market shocks such as the Lloyds crisis in the late 1980's and early 1990's.

The use of the words "insurance" and "reinsurance" in paragraph 29 do not constitute a disclosure by *Lange* of the system and method of allocating risk through risk capital allocation. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

The Examiner states in paragraph 30 that, with respect to claim 27, *Lange* discloses redistributing profit in paragraph 1392. The Applicant respectfully traverses. In paragraph 1392, as indicated below, *Lange* notes that the exchange or dealer of his invention has greatly increased assurance of recovering its transaction fee, due to reduced credit/market risk:

[1392] (2) Reduced credit risk: In preferred embodiments of the present invention, the exchange or dealer has greatly increased assurance of recovering its transaction fee. It therefore has reduced exposure to market risk. In preferred embodiments, the primary function of the exchange is to redistribute returns to successful investments from losses incurred by unsuccessful investments. By implication, traders who use systems of the present invention can enjoy limited liability, even for short positions, and a diversification of counterparty credit risk.

No where in paragraph 1392 does *Lange* disclose redistributing profit. As explained in the Applicant's specification (see, for example, paragraph 472), the Applicant's concept of profit redistribution (i.e., the redistribution of gains exceeding a given amount,

achieved on underlying investment instruments) functions as an additional potential means of reducing or eliminating losses. *Lange*'s paragraph 1392 does not disclose this concept, as it does not include any reference to profit (i.e. investment gain) redistribution. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 31, with respect to claim 28, the Examiner refers the Applicant to the rejection of claim 1. The Applicant respectfully traverses. As supported above, with respect to claim 1, no where in figure 4, element 267, does *Lange* disclose identifying a plurality of holders of investment instruments. Further, as supported above, no where in figure 4, element 266, does *Lange* disclose that the investment instruments of holders are diverse with respect to that of other holders. Further, as supported above, no where in paragraph 46 does *Lange* disclose sharing risk. Further, as supported above, no where in paragraphs 27 and 34 does *Lange* disclose aggregating premiums (at least partially by the holders) to form a loss reduction fund and determining losses incurred by holders. Further, as supported above, no where in paragraph 12 does *Lange* disclose determining which of a plurality of holders incurred a loss in the respective investment instruments at a predetermined time wherein some holders incur a loss and others do not. Further, as supported above, no where in the Abstract and paragraphs 1-5 does *Lange* disclose reimbursing at least a portion of the losses. Further, as supported above, no where in paragraph 37 does *Lange* disclose where some holders may be reimbursed and other holders may not. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 31, with respect to claim 28, the Examiner also refers the

Applicant to the rejection of claim 4. The Applicant respectfully traverses. As supported above, no where in paragraphs 5-7 does *Lange* disclose that the reimbursements are from a loss reduction fund and the premiums are determined as a percentage of the investment price. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 31, with respect to claim 28, the Examiner also refers the Applicant to the rejection of claim 5. The Applicant respectfully traverses. As supported above, no where in paragraph 2 does *Lange* disclose that the investment instrument is a current trading price at the time the premiums are aggregated. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 31, with respect to claim 28, the Examiner also refers the Applicant to the rejection of claim 17. In the rejection of claim 17, the Examiner refers the Applicant to the rejection of claim 15. The Applicant respectfully traverses. As supported above, with respect to claim 15, no where in paragraphs 33, 965, and 983 does *Lange* disclose that all of the plurality of holders are reimbursed for a loss that is less than the threshold loss and none are reimbursed if the loss is greater than the threshold loss. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

As noted in the previous paragraph, in paragraph 31, with respect to claim 28, the Examiner refers the Applicant to the rejection of claim 17. In the rejection of claim 17, the Examiner also refers the Applicant to the rejection of claim 13. The Applicant respectfully traverses. As supported above, with respect to claim 13, no where in paragraphs 41, 43, 297, 328, and 335 does *Lange* disclose that the threshold loss is a

percentage value. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 32, with respect to claim 29, the Examiner refers the Applicant to the rejection of claim 1. The Applicant respectfully traverses. As supported above, with respect to claim 1, no where in figure 4, element 267, does *Lange* disclose identifying a plurality of holders of investment instruments. Further, as supported above, no where in figure 4, element 266, does *Lange* disclose that the investment instruments of holders are diverse with respect to those of other holders. Further, as supported above, no where in paragraph 46 does *Lange* disclose sharing risk. Further, as supported above, no where in paragraphs 27 and 34 does *Lange* disclose aggregating premiums (at least partially by the holders) to form a loss reduction fund and determining losses incurred by holders. Further, as supported above, no where in paragraph 12 does *Lange* disclose determining which of a plurality of holders incurred a loss in the respective investment instruments at a predetermined time wherein some holders incur a loss and others do not. Further, as supported above, no where in the Abstract and paragraphs 1-5 does *Lange* disclose reimbursing at least a portion of the losses. Further, as supported above, no where in paragraph 37 does *Lange* disclose where some holders may be reimbursed and other holders may not. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 32, with respect to claim 29, the Examiner again refers the Applicant to the rejection of claim 4. The Applicant respectfully traverses. As supported above, no where in paragraphs 5-7 does *Lange* disclose that the reimbursements are from a loss reduction fund and the premiums are determined as a percentage of the investment

price. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 32, with respect to claim 29, the Examiner again refers the Applicant to the rejection of claim 5. The Applicant respectfully traverses. As supported above, no where in paragraph 2 does *Lange* disclose that the investment instrument is a current trading price at the time the premiums are aggregated. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

In paragraph 32, with respect to claim 29, the Examiner refers the Applicant to the rejection of claim 13. The Applicant respectfully traverses. As supported above, with respect to claim 13, no where in paragraphs 41, 43, 297, 328, and 335 does *Lange* disclose that the threshold loss is a percentage value. Therefore, the Applicant respectfully asks the Examiner to withdraw the rejection as to this basis.

For all these reasons, the Applicant submits that the rejection under 35 U.S.C. 102 is improper and the Applicant respectfully asks the Examiner to withdraw the rejection.

IV. Rejections under 35 U.S.C. § 103

The Examiner has rejected claims 6, 9 and 10 under 35 U.S.C. § 103 as being unpatentable over *Lange* in view of U.S. Patent No. 5,126,936 to *Champion*.

For the reasons discussed above, *Lange* does not teach or disclose the features of claim 1, in addition to the features of claims 2-5, 7, 8 and 11-29. *Champion* is relied on by the Examiner in combination with *Lange* for the disclosure of stocks, bonds, futures, options, derivatives, funds and trusts. Because *Lange* does not disclose the features of claim 1, in addition to the features of claims 2-5, 7, 8 and 11-29, the

combination of *Lange* and *Champion* does not disclose or suggest the features of dependent claims 6, 9 and 10, and the Applicant respectfully asks the Examiner to withdraw the rejection under § 103 as to those claims.

V. Request for Reconsideration

The Applicant respectfully submits that the claims of this application are in condition for allowance. Accordingly, reconsideration of the rejection and allowance is requested. If a conference would assist in placing this application in better condition for allowance, the undersigned would appreciate a telephone call at the number indicated.

Respectfully submitted,
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